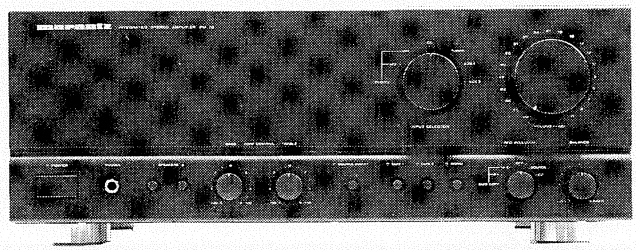
MARA-00552

Service Manual

74 PM72/00B/01B/02B /01G/02G

Integrated stereo amplifier



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marantz®

model PM-72

4822 725 50954

First issue: 1991

MZ 3005

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound.
Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS:

Parts can be ordered either by mail or by telex. In both cases, correct part number has to be specified.
The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

MARANTZ INTERNATIONAL
Vestdijk 9
5600 MD Eindhoven
The Netherlands
Phone: +31/40.758290
Telefax: +31/40.75.82.99
Telex: 35000 PHTC NL routing IND NLMTFAT

PARTS ORDERING

Parts may be ordered at the following addresses:

AUSTRIA
HORNYPHON
Vertriebsgesellschaft GmbH
Wienerbergstrasse 1
A 1101 Wien
Austria
Telex: 132.332

BELGIUM
SVD DIVISION MARANTZ
Industrialaan 1
1720 Groot-Bijgaarden
Belgium
Telex: 24466

CHILE
MARANTZ
DIVISION OF PHILIPS S.A.
AV. Santa Maria, 0760
Casilla 2687
Santiago
Telex: 240.239

DENMARK
MARANTZ
DIVISION OF PHILIPS
SERVICE A/S
Prags Boulevard 80
Postbox 1919
DK-2300 København S
Denmark
Telex: 31201

FINLAND
MARANTZ
DIVISION OF OY PHILIPS Ab
Kaivokatu 8
00100 Helsinki
Finland
Telex: 124811

FRANCE
MARANTZ FRANCE
4 Rue Bernard Palissy
92600 Asnières
France
Telex: 611651

GERMANY
MARANTZ GERMANY GmbH
Alexanderstrasse 1
2000 Hamburg
Germany

THE NETHERLANDS
Elpro Marantz
Wint Hontlaan 28
3526 KV Utrecht
The Netherlands
Telex: 4748

NORWAY
MARANTZ
DIVISION OF PHILIPS A/S
Sandstuveien 40
0680 Oslo 6
Norway
Telex: 72640

GREAT BRITAIN
MARANTZ AUDIO U.K. Ltd
Unit 15/16
Saxon Way Industrial Estate
Moor Lane
Harmondsworth UB7 OLW
Great Britain
Telex: 935196

GREECE
SHERTON ELECTRONICS S.A.
P.O.Box 21025
Hippocratus Street 188
Athens 11471
Greece
Telex: 216.795

JAPAN
MARANTZ JAPAN, Inc.
35-1, 7-chome, Sagamiono
Sagamihara-shi, Kanagawa
Japan

KUWAIT
AL ALAMIAH ELECTRONICS
Ussama Building
Fahd al Saleem Street
P.O.Box 23781
Safat-Kuwait
Telex: 22694

ITALY
MARANTZ ITALIANA S.P.A.
Via Chiese, 74
20126 Milano
Italy

SAUDI ARABIA
AL ALAMIAH ELECTRONICS
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia
Telex: 401530

SOUTH AFRICA
MARANTZ
DIVISION OF PHILIPS S.A.
Main Road Martindale
P.O. Box. 58088
Newville 21114
South Africa

SPAIN
PHONO S.A.
Ignacio Iglesias 10
Badalona (Barcelona)
Spain
Telex: 59355

SWEDEN
MARANTZ
DIVISION OF PHILIPS
Försäljning AB
Tegeluddsvägen 1
S-115 84 Stockholm
Sweden
Telex: 14060

SWITZERLAND
MARANTZ
Technischer Service
Duenstrasse 3
3186 Düdingen
Switzerland

TURKEY
DOGRUOL Ltd.
I.M.C.
6 Blok N°6310
Unkapani
Istanbul
Turkey
Telex: 22085

MALTA
CACHIA & GALEA
Republic Street, 68D
Valetta
Telex: 1682

PORTUGAL
MARANTZ
Divisao philips S.A. service
Outurela-carnaxide
2795 LinDA-A-VELHA
Telex: 43906

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

TECHNICAL SPECIFICATIONS (DIN)

Power Amplifier Section

IHF Dynamic Power		
2 ohms		: 250W
4 ohms		: 170W
8 ohms		: 120W
Power Output Per Channel		
DIN 4 ohms	1 kHz 1% THD	: 170W
RMS 4 ohms	1 kHz 0.06% THD	: 150W
DIN 8 ohms	1 kHz 1% THD	: 110W
RMS 8 ohms	1 kHz 0.03% THD	: 100W
FTC 4 ohms	20–20 kHz 0.06% THD	: 95W
FTC 8 ohms	20–20 kHz 0.03% THD	: 70W
Total Harmonic Distortion at 8 ohms		: 0.008%
I.M. Distortion at 8 ohms		: 0.008%
Damping Factor		: 150
Slew Rate		: 70 V/μs

Phono Amplifier Section

MM Cartridge Input	
Frequency Difference	: ±0.5 dB
Signal to Noise Ratio (A weighted)	: 86 dB
Input Sensitivity	: 2.5 mm
Input Impedance	: 47k Ohms
MC Cartridge Input	
Input Sensitivity	: 0.25 mV
Input Impedance	: 100 Ohms

Hight Level Section

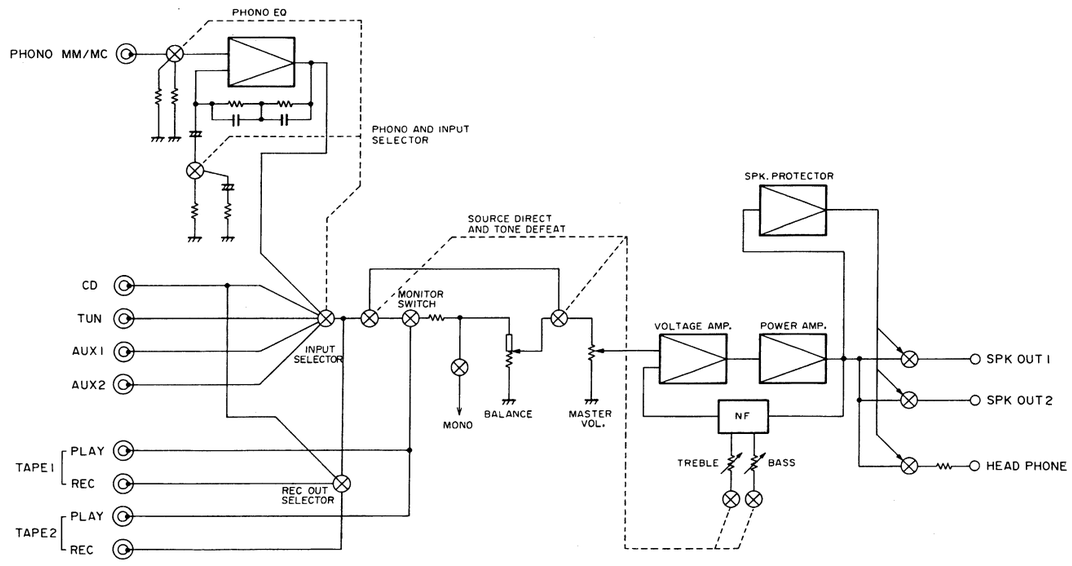
Frequency Response		: 10–70 kHz
Signal to Noise Ratio (A weighted)		: 86 dB
Input Sensitivity		: 150 mV
Input Impedance		: 33k Ohms
Tape Output Level [Phono (MM) 5 mV 1 kHz Input]		: 300 mV
Tape Output Impedance (Phono)		: 220 Ohms (02B/02G – 440 Ohms)
Tone Control Action	100 Hz	: ±6 dB
	10 kHz	: ±6 dB
Channel Separation	(CD Input at 1 kHz)	: 75 dB
	(CD Input at 10 kHz)	: 65 dB

General

Power Requirements	
2 Voltage version	: 02B/02G – 230V 00B – 230V/240V
4 Voltage version	: 01B/01G – 110V–240V
Power Consumption (Rated Power)	
AB Class Moode	: 390W
Dimensions	
Panel Width	: 420 mm
Panel Height	: 132 mm
Depth	: 334 mm
Weight	
Unit alone	: 10 kg

Specifications and appearance are subject to change for modification without notice.

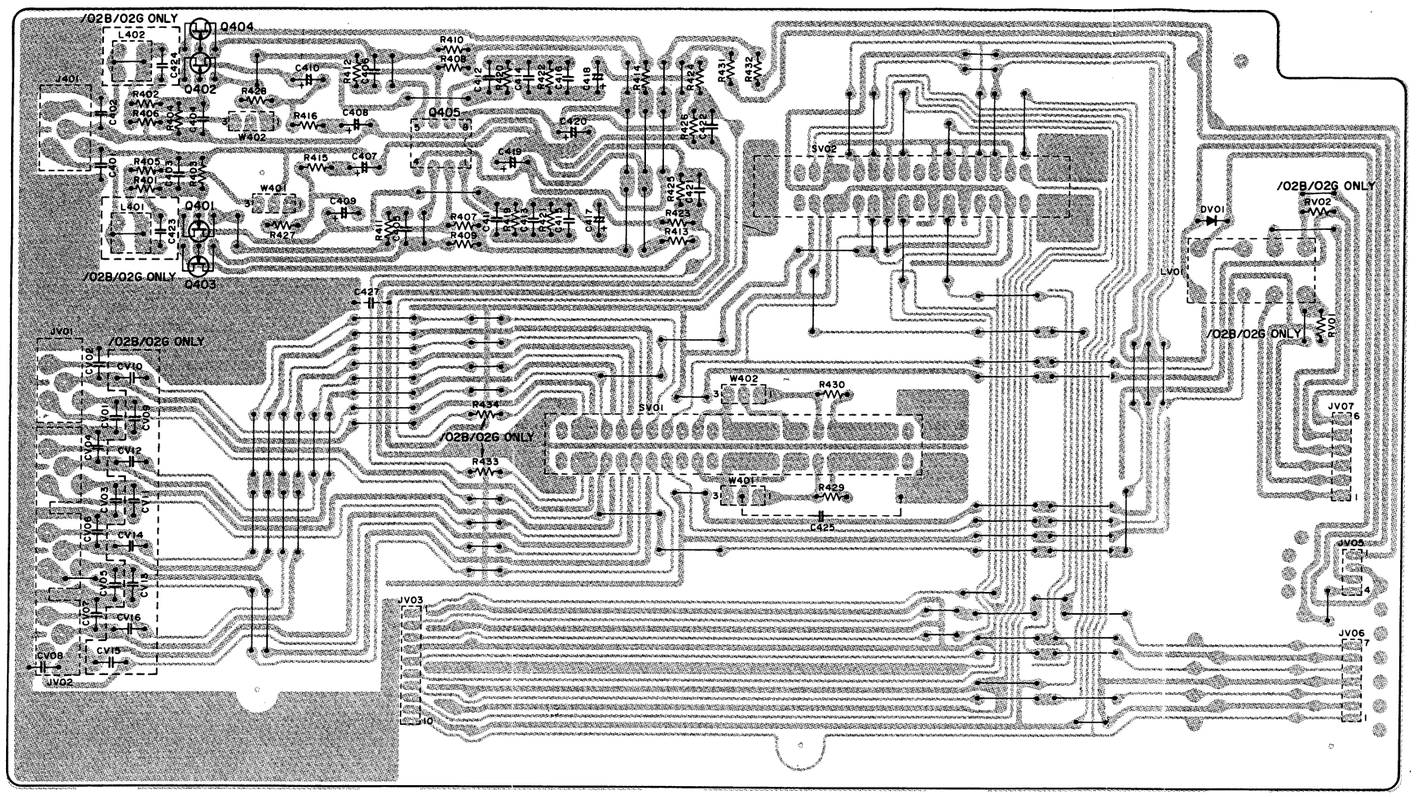
1. BLOCK DIAGRAM



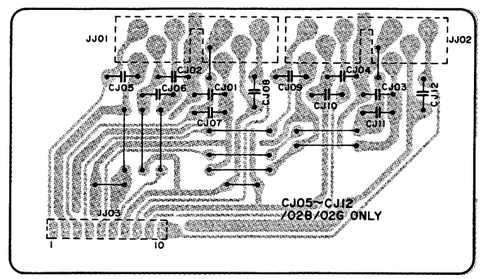
MARA-00552 / DRUCK 1

2. SCHEMATIC DIAGRAM AND PARTS LOCATIONS (Pattern side)

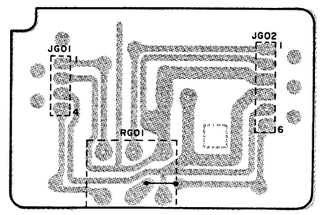
PV01



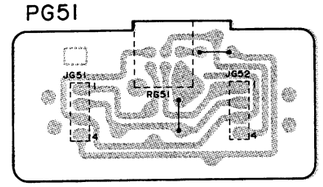
PJ01



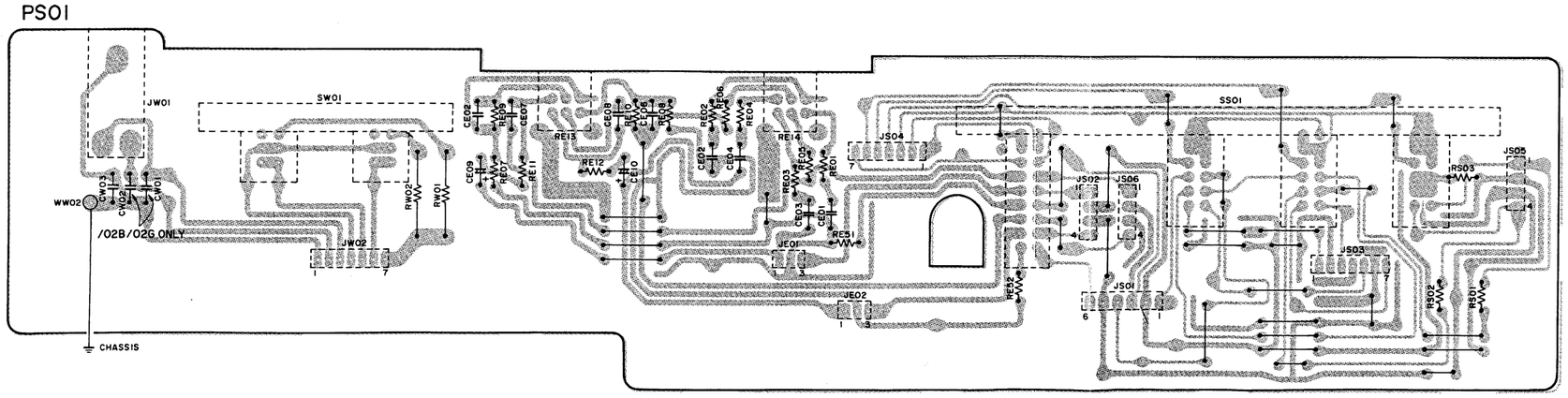
PG01



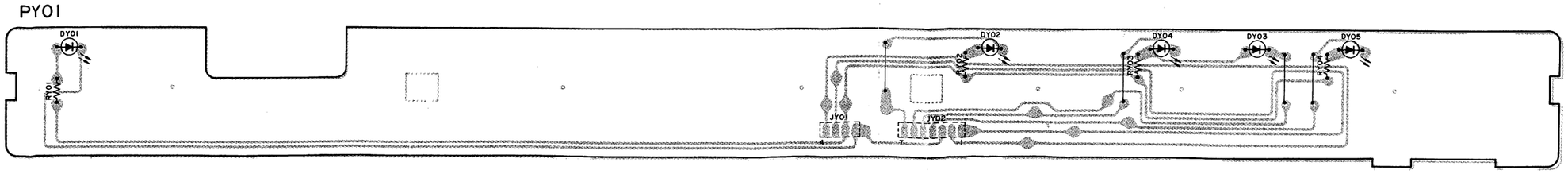
PG51



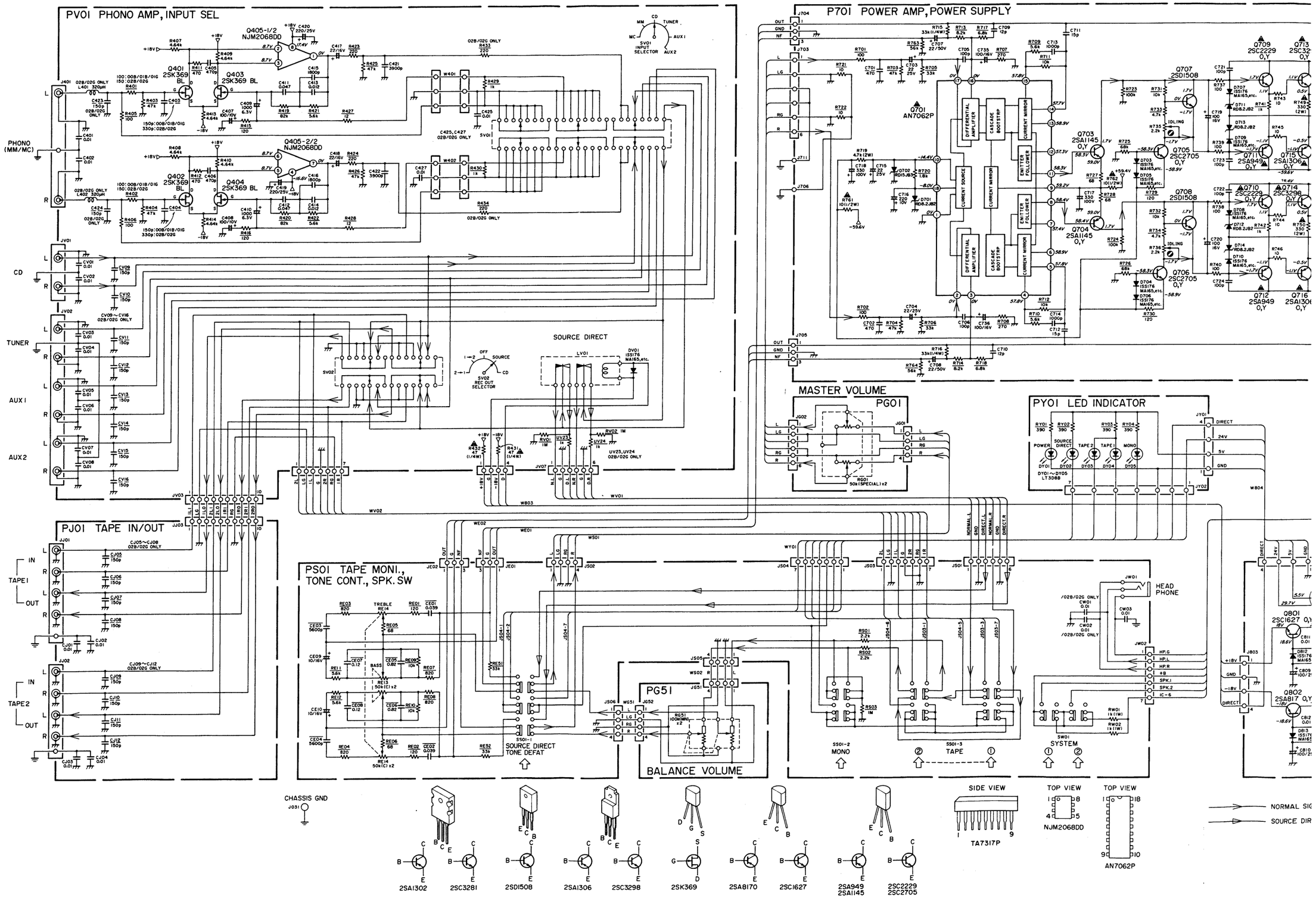
PS01

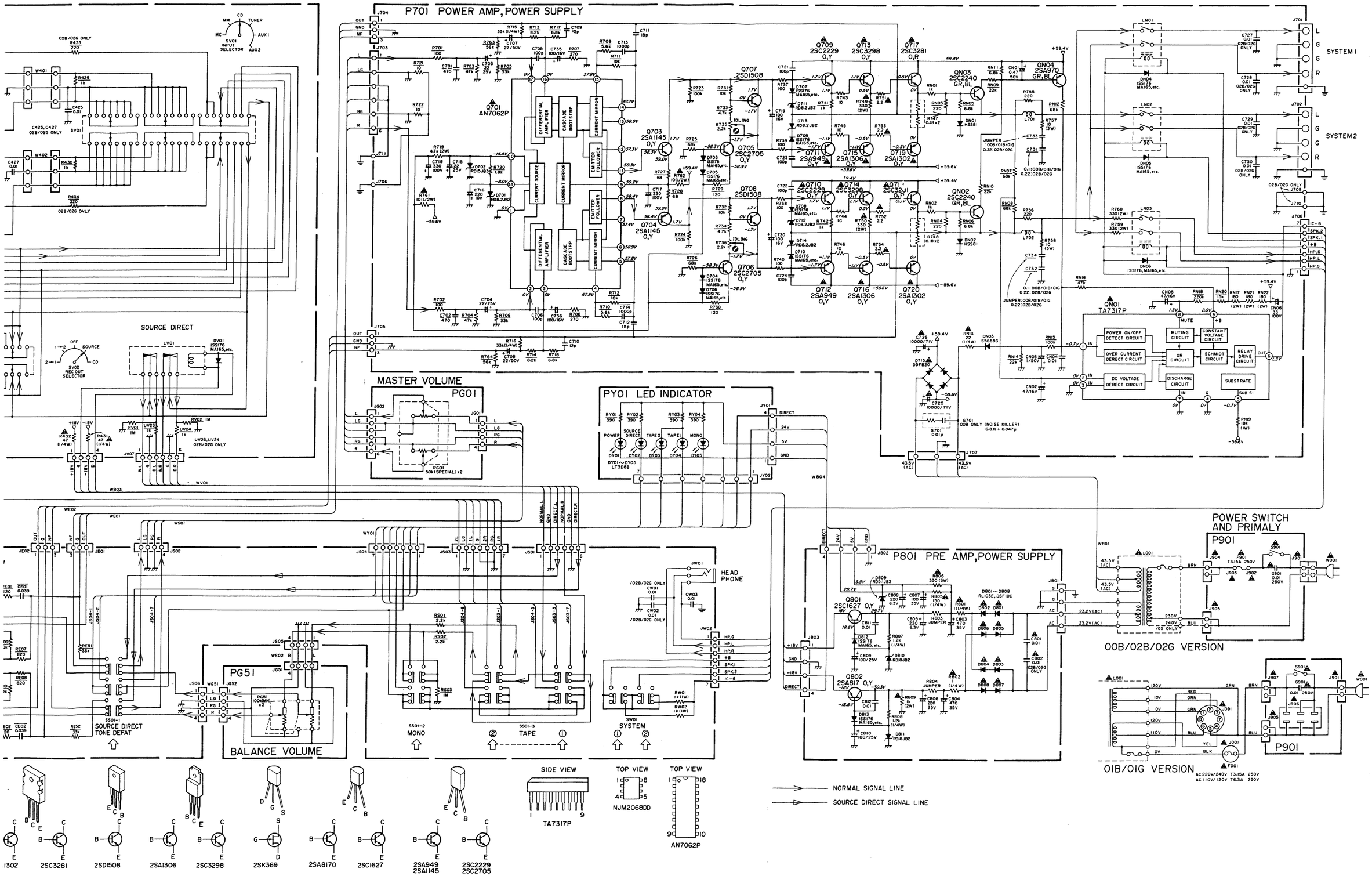


PY01

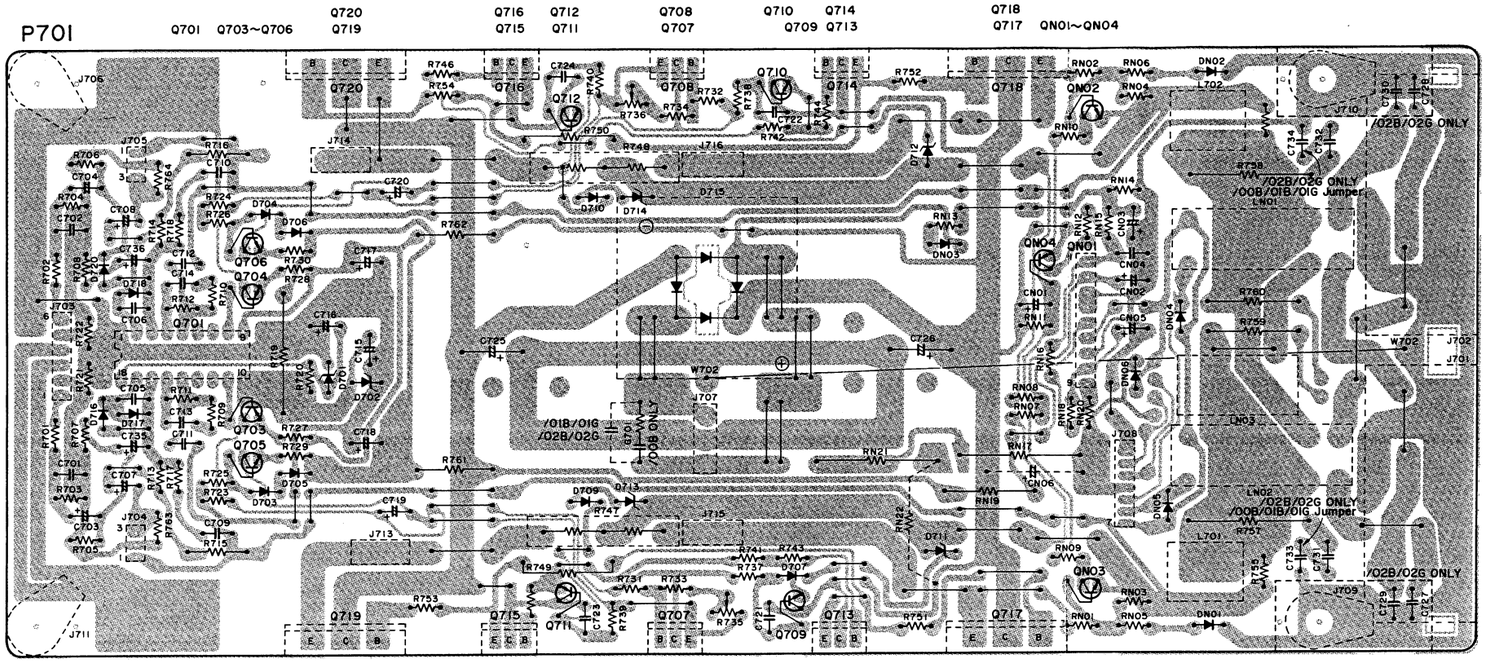


MARA-00552 / DRUCK 2

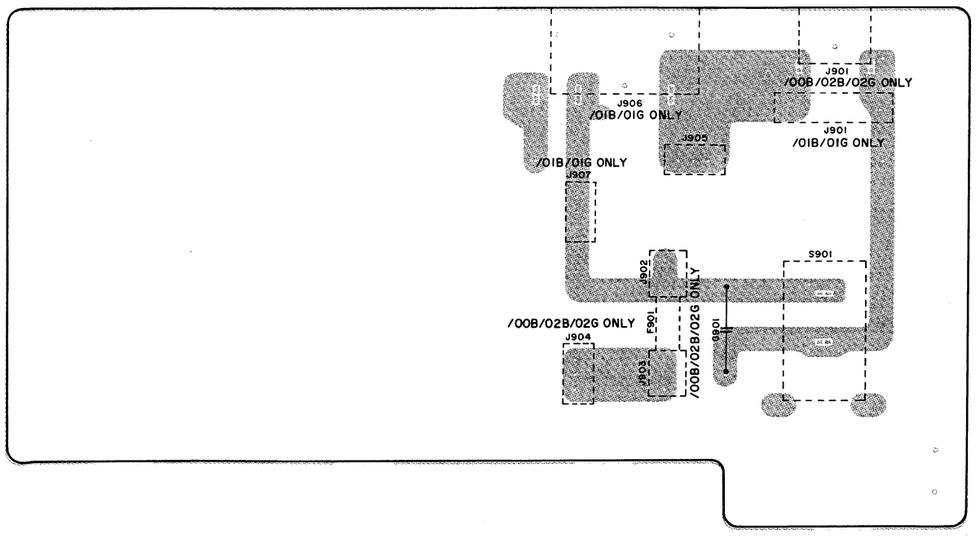

PV01 PHONO AMP, INPUT SEL
Q401 2SK369 BL
Q402 2SK369 BL
Q403 2SK369 BL
Q404 2SK369 BL
Q405-1/2 NJM2068DD
Q405-2/2 NJM2068DD
PHONO (MM/MC)
CD
TUNER
AUX1
AUX2
SV01 INPUT SELECTOR
SV02 REC OUT SELECTOR
SOURCE DIRECT
LV01
DV01 1S176 MA165,etc.
UV23,UV24 028/02G ONLY
P701 POWER AMP, POWER SUPPLY
Q701 AN7062P
Q703 2SA1145 0,Y
Q704 2SA1145 0,Y
Q705 2SC2705 0,Y
Q706 2SC2705 0,Y
Q707 2SD1508
Q708 2SD1508
Q709 2SC2229 0,Y
Q710 2SC2229 0,Y
Q711 2SA1306 0,Y
Q712 2SA949 0,Y
Q713 2SC3298 0,Y
Q714 2SC3298 0,Y
Q715 2SA1306 0,Y
Q716 2SA1306 0,Y
DIFFERENTIAL AMPLIFIER
CASCADE BOOTSTRAP
CURRENT MIRROR
CURRENT SOURCE
EMITTER FOLLOWER
MASTER VOLUME
PG01
RG01 50k(SPECIAL) x2
PY01 LED INDICATOR
DY01~DY05 LT3088
POWER
SOURCE DIRECT
TAPE2
TAPE1
MONO
PJ01 TAPE IN/OUT
TAPE1 IN
TAPE1 OUT
TAPE2 IN
TAPE2 OUT
PS01 TAPE MONI., TONE CONT., SPK. SW
TREBLE
BASS
SOURCE DIRECT TONE DEFAT
PG51
BALANCE VOLUME
SS01-2 MONO
SS01-3 TAPE
SW01 SYSTEM
HEAD PHONE
CHASSIS GND
2SA1302
2SC3281
2SD1508
2SA1306
2SC3298
2SK369
2SA8170
2SC1627
2SA949 2SA1145
2SC2229 2SC2705
SIDE VIEW
TA7317P
TOP VIEW
NJM2068DD
TOP VIEW
AN7062P
NORMAL SIG
SOURCE DIR


P701 POWER AMP, POWER SUPPLY
P801 PRE AMP, POWER SUPPLY
P901
POWER SWITCH AND PRIMALY
MASTER VOLUME
PG01
PY01 LED INDICATOR
PG51
BALANCE VOLUME
SOURCE DIRECT
TONE DEFAT
MONO
TAPE
SYSTEM
HEAD PHONE
SYSTEM 1
SYSTEM 2
Q701 AN7062P
Q707 2SD1508
Q703 2SA1145 0,Y
Q705 2SC2705 0,Y
Q704 2SA1145 0,Y
Q706 2SC2705 0,Y
Q709 2SC2229 0,Y
Q711 2SA949 0,Y
Q713 2SC3298 0,Y
Q715 2SA1306 0,Y
Q717 2SC3281 0,R
Q719 2SA1302 0,Y
Q708 2SD1508
Q710 2SC2229 0,Y
Q712 2SA949 0,Y
Q714 2SC3298 0,Y
Q716 2SA1306 0,Y
Q718 2SC3281 0,Y
Q720 2SA1302 0,Y
QN01 TA7317P
QN02 2SC2240 GR,BL
QN03 2SC2240 GR,BL
QN04 2SA970 GR,BL
Q801 2SC1627 0,Y
Q802 2SA817 0,Y
00B/02B/02G VERSION
01B/01G VERSION
AC 220V/240V T3.15A 250V
AC 110V/120V T6.3A 250V
NORMAL SIGNAL LINE
SOURCE DIRECT SIGNAL LINE
TA7317P
NJM2068DD
AN7062P
2SA1302
2SC3281
2SD1508
2SA1306
2SC3298
2SK369
2SA8170
2SC1627
2SA949 2SA1145
2SC2229 2SC2705

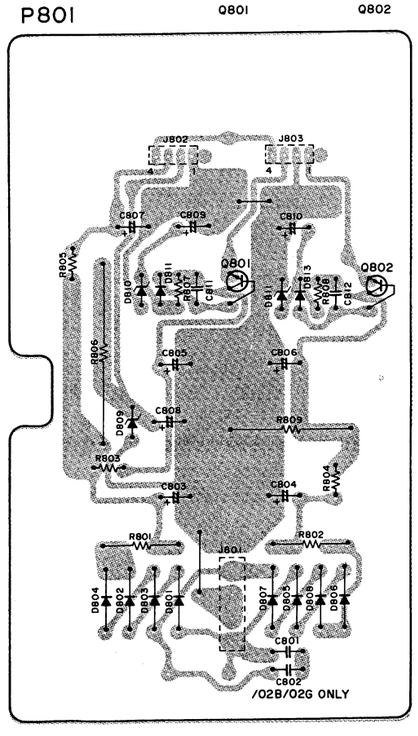
P701



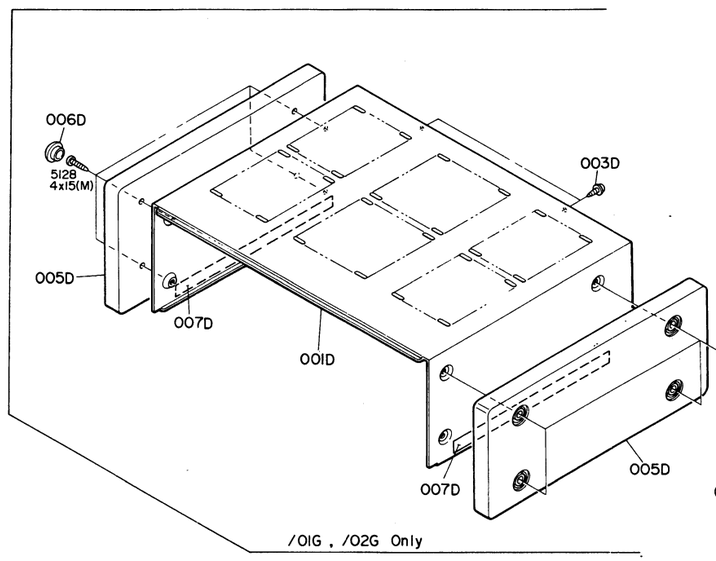
P901 /00B/02B/02G VERSION

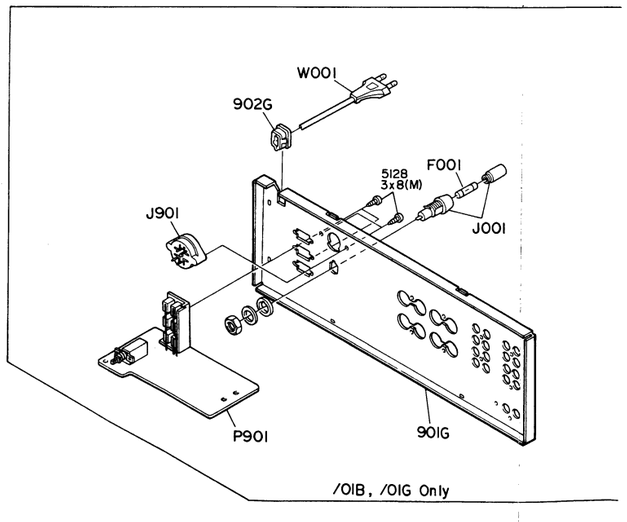


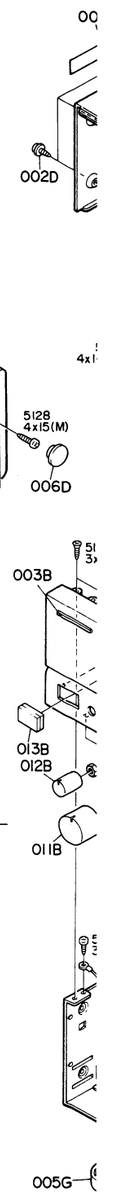
P801

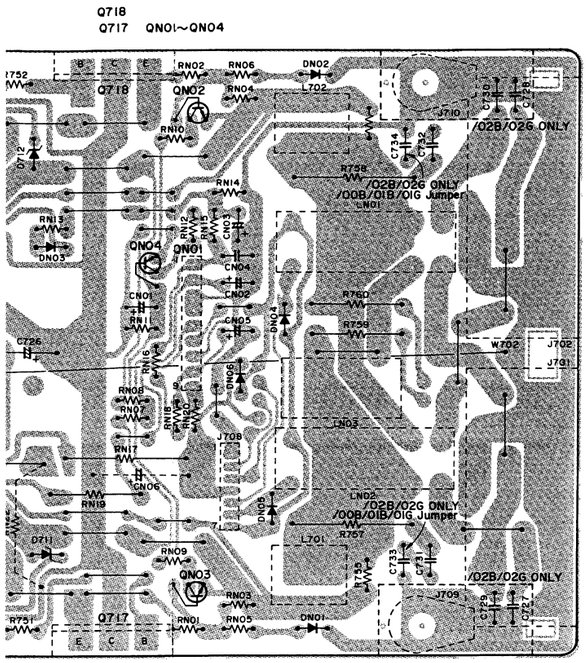


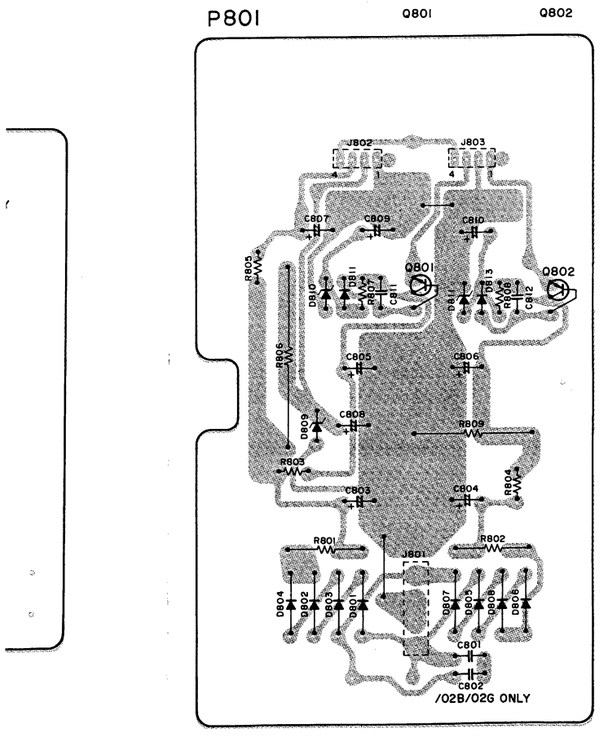
3. EXPLODED VIEW AND PARTS LIST











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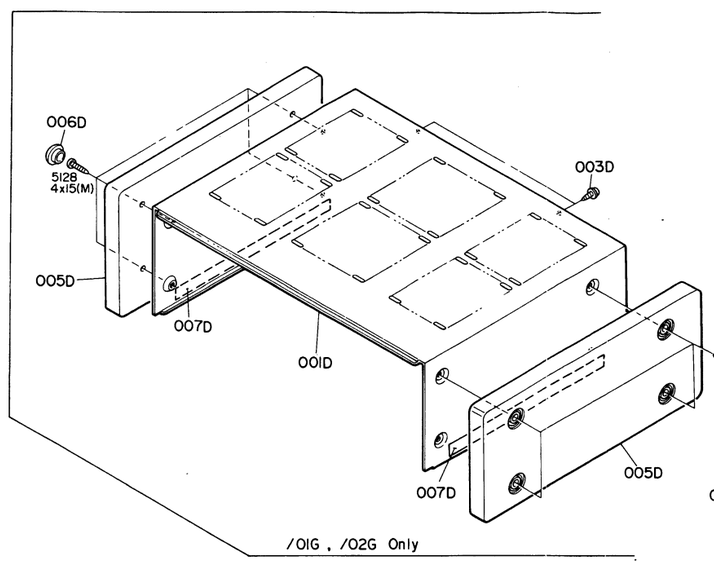
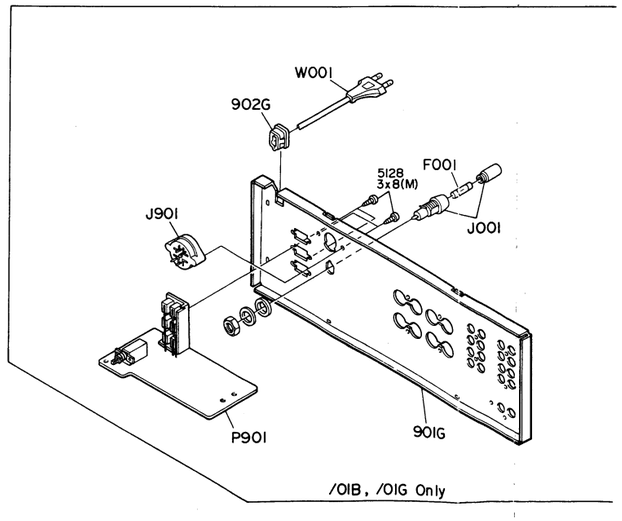
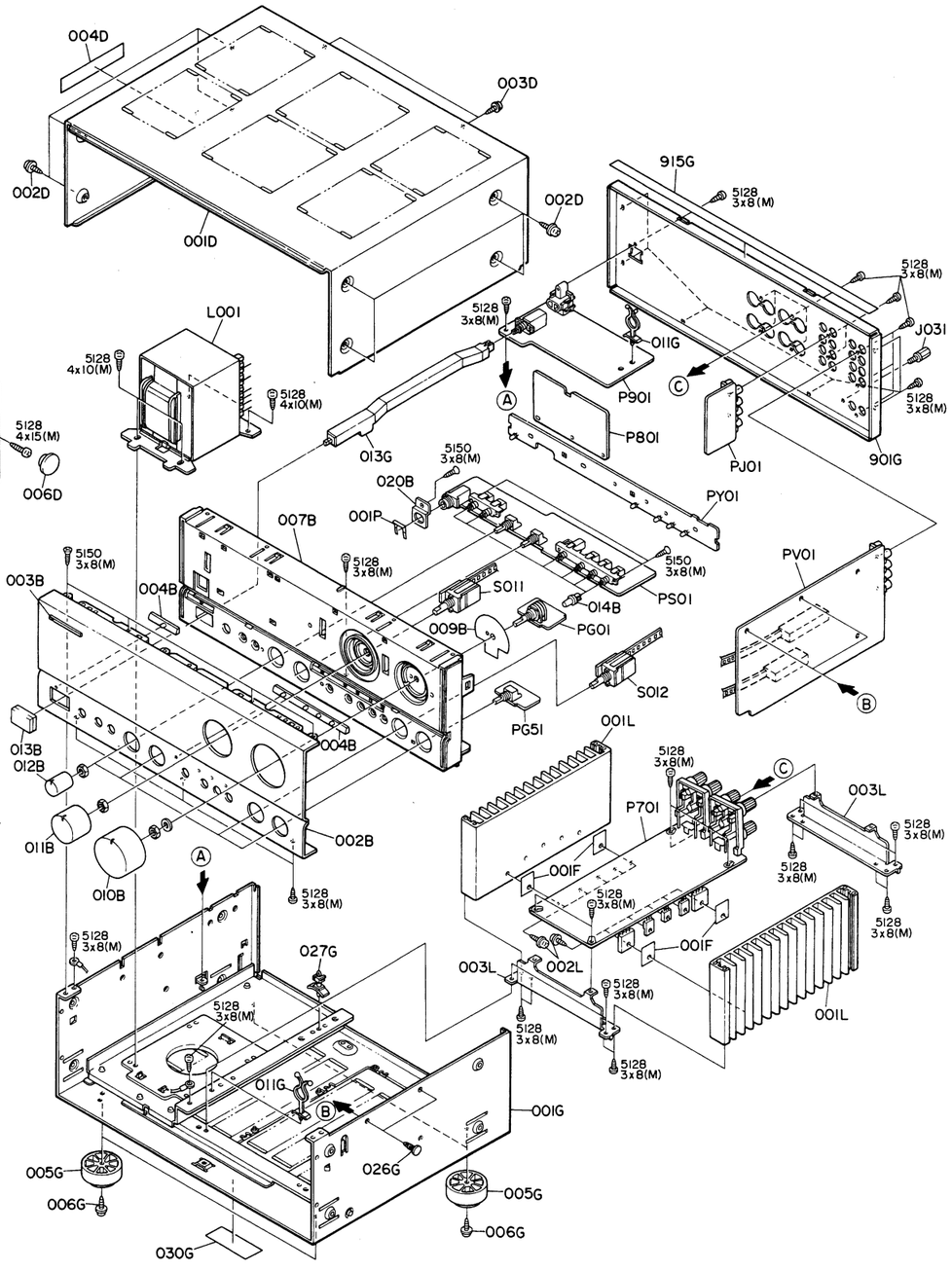






(130J)

REF. DESIG.	PART NO.	DESCRIPTION
002B	4822 426 51515	Front Panel /00B/01B/02B
	4822 426 51518	Front Panel /01G/02G
003B	4822 454 11825	Badge /00B/01B/02B
	4822 459 10855	Badge /01G/02G
004B	4822 381 11286	Lens
007B	4822 464 90712	Front Chassis /00B/01B/02B
	4822 464 90713	Front Chassis /01G/02G
010B	4822 413 41679	Knob, Volume /00B/01B/02B
	4822 413 41683	Knob, Volume /01G/02G
011B	4822 413 41681	Knob, Selector /00B/01B/02B
	4822 413 41684	Knob, Selector /01G/02G
012B	4822 413 41678	Knob, Tone Control /00B/01B/02B
	4822 413 41682	Knob, Tone Control /01G/02G
013B	4822 410 60194	Button, Power /00B/01B/02B
	4822 410 60358	Button, Power /01G/02G
014B	4822 410 60343	Button, Speaker /00B/01B/02B
	4822 410 60334	Button, Speaker /01G/02G
020B	4822 530 80511	Retainer, Headphone
002D	4822 501 11008	B.T. Screw (W/W) B4 x 8 /00B/01B/02B
003D	4822 502 12511	B.T. Screw (W/W) B3 x 8
005D	4822 426 30148	Side Panel /01G/02G
006D	4822 444 60607	Cap. Side Panel /01G/02G
001F	4822 466 92249	Insulator, DENKA SHEET
005G	4822 462 41383	Leg
006G	4822 501 11008	B.T. Screw (W/W) B4 x 8
013G	4822 404 60705	Link, Power Switch
902G	4822 532 60948	Bushing, AC Cord /01B
001P	4822 401 11351	Clamper
⚠ F001	4822 070 33152	Fuse, 3.15A 250V /01B/01G
⚠ F002	4822 253 30243	Fuse, 6.3A 250V /01B/01G
⚠ J001	4822 256 30233	Jack, Fuse Holder /01B/01G
J031	4822 290 40297	Terminal, GND
⚠ J091	4822 272 10227	Voltage Selector /01B/01G
⚠ J092	4822 265 10092	Jack, AC Adapter /01B/01G
⚠ L001	4822 146 21651	Power Transformer /01B/01G
	4822 146 21649	Power Transformer /02B/02G
	4822 146 21648	Power Transformer /00B
S011	4822 273 10236	Rotary Switch, Input
S012	4822 273 10233	Rotary Switch, Output
001T	4822 736 21248	User Manual

4. IDLING CURRENT ADJUSTMENT

(1) Under the power OFF, turn the master volume control fully clockwise to min, and set the balance control and tone controls to center. Set trimmer resistors R735 (left channel) and R736 (right channel) in PC board (P701) to center.

(2) Connect a digital voltmeter ranged direct current to test pins J713 (–) and J715 (+) (left channel), J714 (–) and J716 (+) (right channel) in PC board (P701).

(3) Adjust idling current after setting as above. Turn the power ON, adjust trimmer resistors R735 (left channel) and R736 (right channel) in PC board (P701) while observing the digital voltmeter reading as follows. The initial setting is 16 mV (44.4 mA) for both channels.

NOTE

If turn the power ON after cool down condition, the normal unit idling current turns values that 12.5 mV about 30 seconds later, 14.5 mV about 1 minute later and 16 mV about 3 minutes later. This shows idling current is in stabilized condition.

Therefore, to adjust idling current 30 seconds through 1 minute later after the power ON, adjust to 13.5 – 14 mV. One minute through 2 minutes later, adjust to 15.5mV. Two minutes through 3 minutes later, adjust to 16 mV. Three minutes later, adjust to 16 mV (initial condition).

(4) To adjust idling current after heat running, aging or serving, leave the unit under no input signal, no load condition and the power ON for 10 minutes. Then adjust to 16 mV (initial condition).

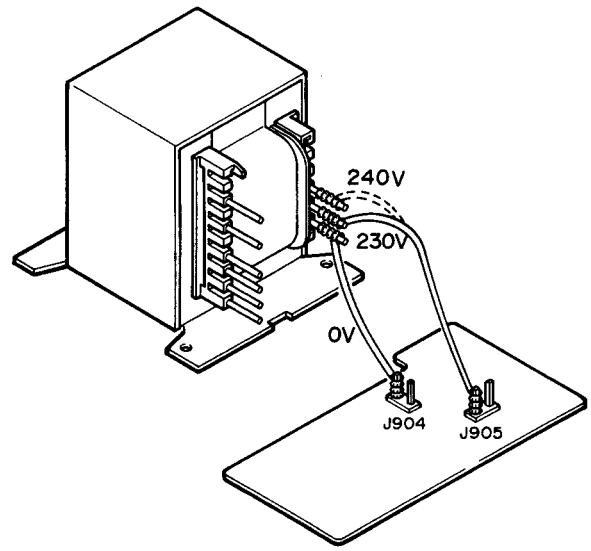
Please refer to the table below.

Elapsed time after power ON	Idling current setting value
30 sec. – 1 min.	13.5mV
1 min. – 2 min.	15.5mV
2 min. – 3 min.	16 mV
More than 3 min.	16 mV

Note on Safety:
Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazared.

5. CHANGING OPERATION VOLTAGE TO 240V

The transformer of the PM-72/00B Version has two kind of taps, 230V or 240V. The operating voltage is factory set to 230V. The operating voltage can be changed to 240V by changing the wiring to the transformer.
In that case, be sure to put the label signs 240V on the voltage indication part of the rear panel.



6. TEST EQUIPMENT REQUIRED FOR SERVICING

Item	Use
Distortion Analyzer	Distortion measurements
Audio Oscillator	Sinewave and squarewave signal source
ACVTVM	Voltage measurements (AC)
Oscilloscope	Waveform analysis and trouble shooting and ASO alignment
Circuit Tester	Trouble shooting
DCVTVM	Voltage measurements (DC)
AC Wattmeter	Monitors primary power to amplifier
Line Voltmeter	Monitors potential of primary power to amplifier
Variable Autotransformer	Adjust level of primery power to amplifier
Shorting Plug	Shorts amplifier input to eliminate noise pickup

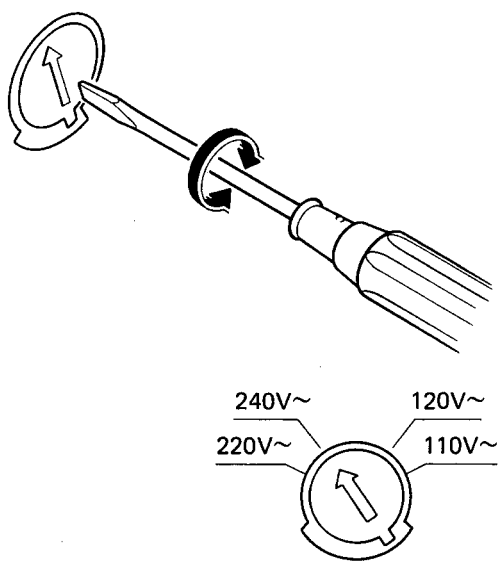
7. VOLTAGE CONVERSION

- **EUROPEAN MODEL ONLY**

To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

VOLTAGE SELECTOR

CAUTION
DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.



8. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR

R***: (1) GD05---140, Carbon film fixed resistor, ±5%, 1/4W
R***: (2) GD05---160, Carbon film fixed resistor, ±5%, 1/6W

① — Resistance value

Examples

① Resistance value

0.1Ω...001	10Ω...100	1kΩ...102	100kΩ...104
0.5Ω...005	18Ω...180	2.7kΩ...272	680kΩ...684
1Ω...010	100Ω...101	10kΩ...103	1MΩ...105
6.8Ω...068	390Ω...391	22kΩ...223	4.7MΩ...475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

C***: CERAMIC CAP.

(1) DD1---370, Ceramic condenser, Disc type, Temp. coeff. P350 ~ N1000, 50V
① ② — ① Capacity value, ② Tolerance

Examples

① Tolerance (Capacity deviation)
±0.25pF...0
±0.5pF...1
±5%...5

* Tolerance of COMMON PARTS handled here are as follows:
0.5pF ~ 5pF...±0.25pF
6pF ~ 10pF...±0.5pF
12pF ~ 560pF...±5%

② Capacity value

0.5pF...005	3pF...030	100pF...101
1pF...010	10pF...100	220pF...221
1.5pF...015	47pF...470	560pF...561

C***: CERAMIC CAP.

(1) DK16---300, High dielectric constant ceramic condenser, Disc type, Temp. chara. 2B4, 50V
① — Capacity value

Example

② Capacity value

100pF...101	1000pF...102	10000pF...103
470pF...471	2200pF...222	

C***: ELECTROLY CAP. (⧧), FILM CAP. (⧦)

(1) EA------10, Electrolytic condenser, One-way lead type, Tolerance ±20%
① ② — ① Dielectric strength, ② Capacity value

Examples

① Capacity value

0.1μF...104	4.7μF...475	100μF...107
0.33μF...334	10μF...106	330μF...337
1μF...105	22μF...226	1100μF...108
		2200μF...228

② Working voltage

6.3V...006	25V...025
10V...010	35V...035
16V...016	50V...050

(2) DF15---350, Plastic film condenser, One-way type, Mylar ±5% 50V
① — Capacity value

Examples

① Capacity value

0.001μF (1000pF)...102	0.1μF...104
0.0018μF.....182	0.56μF...564
0.01μF.....103	1μF...105
0.015μF.....153	

(130J)

REF. DESIG.	PART NO.	DESCRIPTION
		PG01-MASTER VOLUME CIRCUIT BOARD
RG01	4822 101 30653	Variable Resistor 50KΩ, Special
		PG51-BALANCE VOLUME CIRCUIT BOARD
RG51	4822 100 30138	Variable Resistor 100KΩ(MN)
		PJ01-TAPE IN/OUT CIRCUIT BOARD
CJ01 ~ CJ04	4822 122 32486	Ceramic Cap. 0.01μF +80% −20%
JJ01	4822 266 30284	Terminal, 4P; RCA
JJ02	4822 266 30284	Terminal, 4P; RCA
		PS01-TAPE MONI./TONE CONT./SPK. CIRCUIT BOARD
CE09	4822 124 90352	Elect Cap. 10μF 16V
CE10	4822 124 90352	Elect Cap. 10μF 16V
CW01	4822 122 32486	Ceramic Cap. 0.01μF +80% −20% /02B/02G
CW02	4822 122 32486	Ceramic Cap. 0.01μF +80% −20% /02B/02G
CW03	4822 122 32486	Ceramic Cap. 0.01μF +80% −20%
RE13	4822 100 30139	Variable Resistor 50KΩ(C)
RE14	4822 100 30139	Variable Resistor 50KΩ(C)
RW01	4822 116 60331	Resistor 1KΩ 1W
RW02	4822 116 60331	Resistor 1KΩ 1W
JW01	4822 267 31274	Jack, Headphone /00B/01B/02B
	4822 267 31365	Jack, Headphone /01G/02G
SS01	4822 276 13165	Push Switch
SW01	4822 276 13164	Push Switch
		PV01-PHONO AMP/INPUT SELECT CIRCUIT BOARD
		PV01-CAPACITORS
CV01 ~ CV08	4822 122 32486	Ceramic 0.01μF +80% −20%
C401	4822 122 32486	Ceramic 0.01μF +80% −20%
C402	4822 122 32486	Ceramic 0.01μF +80% −20%
C403	4822 121 51037	Film 150pF ±5% /00B/01B/01G
C404	4822 121 51037	Film 150pF ±5% /00B/01B/01G
C405	4822 121 41518	Film 470pF ±5%
C406	4822 121 41518	Film 470pF ±5%
C407	4822 124 90359	Elect 100μF 10V
C408	4822 124 90359	Elect 100μF 10V

REF. DESIG.	PART NO.	DESCRIPTION
C409	4822 124 22694	Elect 1000μF 6.3V
C410	4822 124 22694	Elect 1000μF 6.3V
C411	4822 121 42764	Film 0.047μF ±5%
C412	4822 121 42764	Film 0.047μF ±5%
C413	4822 121 42755	Film 0.012μF ±5%
C414	4822 121 42755	Film 0.012μF ±5%
C415	4822 121 42758	Film 1800pF ±5%
C416	4822 121 42758	Film 1800pF ±5%
C417	4822 124 90358	Elect 22μF 16V
C418	4822 124 90358	Elect 22μF 16V
C419	4822 124 90365	Elect 220μF 25V
C420	4822 124 90365	Elect 220μF 25V
C421	4822 121 42763	Film 3900pF ±5%
C422	4822 121 42763	Film 3900pF ±5%
C425	4822 122 32486	Ceramic 0.01μF +80% −20%
C427	4822 122 32486	Ceramic 0.01μF +80% −20%
		PV01-RESISTORS
R407 ≀ R410	4822 116 53691	4.64KΩ ±1% 1/6W
R413	4822 116 53691	4.64KΩ ±1% 1/6W
R414	4822 116 53691	4.64KΩ ±1% 1/6W
▲ R431	4822 111 90731	47Ω ±2% ¼W, Fuse
▲ R432	4822 111 90731	47Ω ±2% ¼W, Fuse
		PV01-SEMICONDUCTORS
DV01	4822 130 33305	Diode MA165, etc.
Q401 ≀ Q404	4822 130 42839	F.E.T. 2SK369(BL)
Q405	4822 209 73064	IC NJM2068DD
		PV01-MISCELLANEOUS
J401	4822 266 30282	Terminal, 2P; RCA
JV01	4822 266 30282	Terminal, 2P; RCA
JV02	4822 266 30285	Terminal, 6P; RCA
LV01	4822 280 20464	Relay
L401	4822 156 11019	Choke Coil 320μH /02B/02G
L402	4822 156 11019	Choke Coil 320μH /02B/02G
SV01	4822 277 21352	Slide Switch, Input
SV02	4822 277 20832	Slide Switch, Rec Out
		PY01-LED INDICATOR CIRCUIT BOARD
DY01 ≀ DY05	4822 130 80326	L.E.D. LT3D8B
		P701-POWER AMP/POWER SUPPLY CIRCUIT BOARD
		P701-CAPACITORS
C701	4822 121 41518	Film 470pF ±5% /00B/01B/01G
C702	4822 121 41518	Film 470pF ±5% /00B/01B/01G
C703	4822 124 90361	Elect 22μF 25V
C704	4822 124 90361	Elect 22μF 25V
C705	4822 126 10364	Ceramic 100pF ±10%
C706	4822 126 10364	Ceramic 100pF ±10%
C707	4822 124 90362	Elect 22μF 50V
C708	4822 124 90362	Elect 22μF 50V
C709	4822 126 11552	Ceramic 12pF ±5%
C710	4822 126 11552	Ceramic 12pF ±5%

REF. DESIG.	PART NO.	DESCRIPTION
C711	4822 126 10512	Ceramic 15pF ±5%
C712	4822 126 10512	Ceramic 15pF ±5%
C715	4822 124 90361	Elect 22μF 25V
C716	4822 124 90363	Elect 220μF 10V
C717	4822 124 22724	Elect 330μF 100V
C718	4822 124 22724	Elect 330μF 100V
C719	4822 124 90354	Elect 100μF 16V
C720	4822 124 90354	Elect 100μF 16V
C721 ≀ C724	4822 121 51036	Film 100pF ±5%
▲ C725	4822 124 23927	Elect 10000μF 71V
▲ C726	4822 124 23927	Elect 10000μF 71V
C727 ≀ C730	4822 122 32486	Ceramic 0.01μF +80% −20% /02B/02G
C735	4822 124 90354	Elect 100μF 16V
C736	4822 124 90354	Elect 100μF 16V
CN01	4822 124 22273	Elect 0.47μF 50V
CN02	4822 124 41539	Elect 47μF 16V
CN03	4822 124 41543	Elect 1μF 50V
CN05	4822 124 41539	Elect 47μF 16V
CN06	4822 124 23994	Elect 33μF 100V
G701	4822 122 30043	Ceramic 0.01μF +80% −20% /01B/02B/01G/02G
	4822 126 11235	Composit 0.047μF/6.8Ω /00B
		P701-RESISTORS
R715	4822 050 23303	33KΩ ±5% ¼W
R716	4822 050 23303	33KΩ ±5% ¼W
R719	4822 116 60437	4.7KΩ ±5% 2W
R735	4822 100 20681	2.2KΩ, Trimming
R736	4822 100 20681	2.2KΩ, Trimming
R737 ≀ R740	4822 111 91285	100Ω ±5% 1/6W
R743 ≀ R746	4822 111 91291	10Ω ±5% 1/6W
R747	4822 111 91002	0.18Ωx2, Composit
R748	4822 111 91002	0.18Ωx2, Composit
▲ R749	4822 116 60494	330Ω ±5% 2W, Metal
▲ R750	4822 116 60494	330Ω ±5% 2W, Metal
▲ R751 ≀ ▲ R754	4822 050 22208	2.2Ω ±5% ¼W
R755	4822 050 22201	220Ω ±5% ¼W
R756	4822 050 22201	220Ω ±5% ¼W
R757	4822 116 83353	10Ω ±5% 3W, Metal
R758	4822 116 83353	10Ω ±5% 3W, Metal
R759	4822 116 60494	330Ω ±5% 2W, Metal
R760	4822 116 60494	330Ω ±5% 2W, Metal
▲ R761	4822 116 60313	10Ω ±5% ½W, Fuse
▲ R762	4822 116 60313	10Ω ±5% ½W, Fuse
RN01	4822 111 91257	1KΩ ±5% 1/6W
RN02	4822 111 91257	1KΩ ±5% 1/6W
▲ RN13	4822 113 90119	22Ω ±2% ¼W, Fuse
RN17	4822 116 60447	180Ω ±5% 2W
RN19	4822 116 60344	18KΩ ±5% 1W
RN21	4822 116 60447	180Ω ±5% 2W
RN22	4822 116 60447	180Ω ±5% 2W

REF. DESIG.	PART NO.	DESCRIPTION
		P701-SEMICONDUCTORS
D701	4822 130 80273	Zener RD8.2JB2/MTZJ8.2C
D702	4822 130 80322	Zener RD15JB3/MTZJ16A
D703 ~ D710	4822 130 33305	Diode MA165, etc.
D711 ~ D714	4822 130 80273	Zener RD8.2JB2/MTZJ8.2C
▲ D715	4822 130 33132	Diode D5FB20
DN01	4822 130 80837	Diode HSS81
DN02	4822 130 80837	Diode HSS81
DN03	4822 130 80839	Diode S5688G
DN04	4822 130 33305	Diode MA165, etc.
DN05	4822 130 33305	Diode MA165, etc.
DN06	4822 130 33305	Diode MA165, etc.
▲ Q701	4822 209 83732	IC AN7062P
Q703	4822 130 42999	Transistor 2SA1145(O, Y)
Q704	4822 130 42999	Transistor 2SA1145(O, Y)
Q705	4822 130 43283	Transistor 2SC2705(O, Y)
Q706	4822 130 43283	Transistor 2SC2705(O, Y)
Q707	4822 130 60526	Transistor 2SD1508
Q708	4822 130 60526	Transistor 2SD1508
▲ Q709	4822 130 43225	Transistor 2SC2229(O, Y)
▲ Q710	4822 130 43225	Transistor 2SC2229(O, Y)
▲ Q711	4822 130 42941	Transistor 2SA949(O, Y)
▲ Q712	4822 130 42941	Transistor 2SA949(O, Y)
▲ Q713	4822 130 60525	Transistor 2SC3298(O, Y)
▲ Q714	4822 130 60525	Transistor 2SC3298(O, Y)
▲ Q715	4822 130 60524	Transistor 2SA1306(O, Y)
▲ Q716	4822 130 60524	Transistor 2SA1306(O, Y)
▲ Q717	4822 130 61747	Transistor 2SC3281(O, R)
▲ Q718	4822 130 61747	Transistor 2SC3281(O, R)
▲ Q719	4822 130 42123	Transistor 2SA1302(O, R)
▲ Q720	4822 130 42123	Transistor 2SA1302(O, R)
▲ QN01	4822 209 83312	IC TA7317P
QN02	4822 130 43233	Transistor 2SC2240(GR, BL)
QN03	4822 130 43233	Transistor 2SC2240(GR, BL)
QN04	4822 130 42951	Transistor 2SA970(GR, BL)
		P701-MISCELLANEOUS
J701	4822 290 60837	Terminal, Speaker /00B/01B/01G
	4822 290 60841	Terminal, Speaker /02B/02G
J702	4822 290 60836	Terminal, Speaker /00B/01B/01G
	4822 290 60839	Terminal, Speaker /02B/02G
L701	4822 157 63085	Air Coil
L702	4822 157 63085	Air Coil
LN01	4822 280 70354	Relay
LN02	4822 280 70354	Relay
LN03	4822 280 20196	Relay
		P801-PRE AMP/POWER SUPPLY CIRCUIT BOARD
		P801-CAPACITORS
▲ C801	4822 122 32486	Ceramic 0.01μF +80% −20%
▲ C802	4822 122 32486	Ceramic 0.01μF +80% −20% /02B/02G
C803	4822 124 41541	Elect 470μF 35V
C804	4822 124 41541	Elect 470μF 35V
C805	4822 124 41538	Elect 220μF 35V
C806	4822 124 41538	Elect 220μF 35V
C807	4822 124 41536	Elect 100μF 35V
C808	4822 124 41537	Elect 220μF 6.3V
C809	4822 124 41535	Elect 100μF 25V

REF. DESIG.	PART NO.	DESCRIPTION
C810	4822 124 41535	Elect 100μF 25V
C811	4822 122 32486	Ceramic 0.01μF +80% −20%
C812	4822 122 32486	Ceramic 0.01μF +80% −20%
		P801-RESISTORS
▲ R801	4822 050 21008	1Ω ±5% ¼W
▲ R802	4822 050 21008	1Ω ±5% ¼W
▲ R805	4822 116 82051	150Ω ±2% ¼W
▲ R806	4822 116 60491	330Ω ±5% 3W
R807	4822 111 91423	1.2KΩ ±5% ¼W
R808	4822 111 91423	1.2KΩ ±5% ¼W
▲ R809	4822 116 60332	1KΩ ±5% 2W
		P801-SEMICONDUCTORS
▲ D801	4822 130 32508	Diode RL103E/DSF10C
▲ D802	4822 130 32508	Diode RL103E/DSF10C /02B/02G
▲ D803	4822 130 32508	Diode RL103E/DSF10C
▲ D804	4822 130 32508	Diode RL103E/DSF10C /02B/02G
▲ D805	4822 130 32508	Diode RL103E/DSF10C
▲ D806	4822 130 32508	Diode RL103E/DSF10C /02B/02G
▲ D807	4822 130 32508	Diode RL103E/DSF10C
▲ D808	4822 130 32508	Diode RL103E/DSF10C /02B/02G
D809	4822 130 80317	Zener RD5.1JB2/MTZJ5.1B
D810	4822 130 80838	Zener RD18JB2/MTZJ18C
D811	4822 130 80838	Zener RD18JB2/MTZJ18C
D812	4822 130 33305	Diode MA165, etc.
D813	4822 130 33305	Diode MA165, etc.
Q801	4822 130 60696	Transistor 2SC1627(O, Y)
Q802	4822 130 60693	Transistor 2SA817(O, Y)
		P901-POWER SWITCH/PRIMALY CIRCUIT BOARD
▲ F901	4822 070 33152	Fuse 3.15A 250V /00B/02B/02G
▲ G901	4822 121 43732	Film Cap. 0.01μF ±20%
▲ J901	4822 267 31416	Jack, AC Inlet /00B/02B/02G
▲ J906	4822 267 31417	Jack, AC Outlet /01B/01G
▲ S901	4822 276 12924	Push Switch, Power

NOTE ON SAFETY:
Symbol ▲ Fire or electrical shock hazard. Only original parts should be uned to replace any part marked with symbol ▲. Any other component substitution (other than original type), mayincrease risk of fire or electrical shock hazard.